

## Light sources



One of the oldest sources of light is the Sun, representing a chemical deactivating reagent of hydrogen that emits electromagnetic radiation and in the visible spectrum (white light), and through reflection systems we can have light in dark (closed) space without any an energy consumption.



The candle or the oil lamp are man-made elements for producing Light and emitting the visible electromagnetic radiation from the chemical reaction between a flammable material that burns oxygen in the atmosphere.



The incandescent bulb (invented by Edison) - the first electric light generator works on the principle of heating a conductive element (Wolfram = Tungsten) up to the point of melting, at which point the electrons emitted from the electrothermal reaction are in the visible spectrum. The heated element is inserted into a vacuum glass flask or inert gas to prevent its burning.



The fluorescent tube was invented in 1909 and consists of a glass tube, an electron generator (a filamentary filament) at the ends of the tube, a gas that amplifies the agitation of emitted electrons and a substance called luminophore deposited inside the glass tube. Electron bombardment of the luminophore layer produces the phenomenon of fluorescence, which is the property of substances to emit visible light as long as they are bombarded. Depending on the substance used for luminophore, different colors of light can be emitted.



The Compact Fluorescent Lamp (CFL) or the Economic Bulb has the same operating principle as the fluorescent tube with the difference that it also includes the electronic electron power supply part of the electron generator.



High or low pressure gas discharge lamps - emit electromagnetic radiation in the visible spectrum from an electric arc, discharged into a gas (which can be at low or high pressure) that amplifies the number of emitted electrons. These gas discharge lamps have a high efficiency to turn the electricity into light.



Incandescent halogens have the same operating principle as incandescent lamps, with the following differences: the balloon is of quartz and small size, and halogen is also introduced in addition to the inert gas (Iod or Brom). Usually Iodine is added for tungsten vapor to be combined with it, resulting in tungsten iodide which, in contact with the hot filament, decomposes, leaving the metal on the filament and releasing the iodine back into the bulb. The process is resumed and has the effect of prolonging the working time of the filament and, therefore, of the light source.



LEDs (Light Emitting Diode) It seems that this new light source originates between the basic electronic components, namely the diode.